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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,989	12/26/2000	Eric R. Fossum	06816/051002/CIT2247-C1	6859

20985 7590 08/03/2004

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER

HERNANDEZ, NELSON D

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,989

Applicant(s)

FOSSUM ET AL.

Examiner

Nelson D. Hernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 26-33 is/are rejected.
- 7) ☒ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/26/2000</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-21, 24 and 27-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,166,768. Although the conflicting claims are not identical, they are not patentably distinct from each other because the reasons discussed below.

Claims 1-3, 19 and 21 is a broader recitation of the same invention claimed in patent claims 1-3, 19 and 21 respectively. The claims are substantially the same except that "photogate" in the patent has been replaced with "photodetector" in the application. Since photodetector is a broader term than photogate, the application claims are encompassed by the patent claims.

Claims 4, 6-11, 14-18 and 20 are substantially the same as in the patent claims 4, 6-11, 14-18 and 20 respectively.

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Claim 5 is a broader recitation of the same invention claimed in patent claim 5. The claim is substantially the same except that "sensing node" in the patent has been replaced with "floating gate of said transistor" in the application. "Sensing node" in patent claim is referring to the floating gate of the transistor as in patent claim 5. Therefore, the application claim is encompassed by the patent claim.

Claim 12 is a broader recitation of the same invention claimed in patent claim 12. The claim is substantially the same except that "plural load transistors and plural correlated double sampling circuits" in the patent has been replaced with "plurality of load transistors and correlated double sampling circuits" in the application. The application claim is encompassed by the patent claim.

Claim 13 is a broader recitation of the same invention claimed in patent claim 13. The claim is substantially the same except that "bottom" in the patent has been replaced with "end" in the application. The application claim is encompassed by the patent claim.

Claim 24 is substantially the same as in the patent claim 23.

Claim 27 is a broader recitation of the same invention claimed in patent claim 24. The claim is substantially the same except that "photogate" in the patent has been replaced with "photodetector" in the application. Since photodetector is a broader term than photogate, the application claim is encompassed by the patent claim.

Claim 28 is substantially the same as in the patent claim 25.

Claim 29 is substantially the same as in the patent claim 26.

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Claim 30 is a broader recitation of the same invention claimed in patent claim 27. The claim is substantially the same except that "photogate" in the patent has been replaced with "photodetector" in the application. Since photodetector is a broader term than photogate, the application claim is encompassed by the patent claim

Claim 31 is substantially the same as in the patent claim 28. Therefore a terminal disclaimer is necessary to ensure that any two resultant patents are commonly owned.

Claim 32 is a broader recitation of the same invention claimed in patent claim 29. The claim is substantially the same except that "photogate" in the patent has been replaced with "photodetector" in the application. Since photodetector is a broader term than photogate, the application claim is encompassed by the patent claim.

Claim 33 is substantially the same as in the patent claim 30.

Since claims 1-21, 24 and 27-33 in the application claims are encompassed by the patent claims. Therefore a terminal disclaimer is necessary to ensure that any two resultant patents are commonly owned.

3. Claim 22, 23 and 26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 22 of U.S. Patent No. 6,166,768 in view of Martin, US Patent 6,243,131 B1.

Regarding claims 22 and 23, claim 23 is substantially the same as in the patent claim 30. It is noted that claim 23 depends on claim 22, wherein the limitations of having the first diffusion region is a floating node operating as a

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source of the pixel transistor and that the second diffusion region is biased at a selected DC voltage to function as a drain in claim 22 are not claimed in the patent.

However, Martin teaches the structure of an active pixel sensor (Fig. 6) wherein the pixel contains a transfer gate (Fig. 6: 601) and a floating-diffusion source follower output amplifier. The pixel source follower section converts the photogenerated signal output into a voltage at a junction (Fig. 6: 602). Martin also teaches a second diffusion region biased at a selected DC voltage to function as a drain in fig. 6 (Col. 10, lines 22-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a floating-diffusion source follower output amplifier to convert the photogenerated signal output into an electronic signal and have a second diffusion region biased at a selected DC voltage to function as a drain with the motivation of making an active pixel sensor having a built-in output amplification as suggested by Martin (Col. 10, lines 32-45).

Regarding claim 26, the limitations of having a circuit comprising a field-effect source follower output transistor formed in each one of the cells, the second region of said pixel transistor being connected to a gate of said source follower output transistor; a field-effect load transistor connected to said source follower output transistor; and a correlated double sampling circuit having an input node connected between said source follower output transistor and said load transistor and operable to sample said second diffusion region twice in an

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readout operation to produce an output signal indicating only said photo-generated charge are not claim in the patent.

However, Martin teaches the structure of an active pixel sensor (Fig. 6) wherein the pixel contains a transfer gate (Fig. 6: 601) and a floating-diffusion source follower output amplifier. The pixel source follower section converts the photogenerated signal output into a voltage at a junction (Fig. 6: 602). Martin also teaches a second diffusion region biased at a selected DC voltage to function as a drain in fig. 6. Also teaches a field-effect load transistor (Fig. 6: MLM) connected to the source follower output transistor (Col. 10, lines 35-39). In fig. 6, Martin also teaches a correlated double sampling circuit having an input node connected between said source follower output transistor and said load transistor and operable to sample said second diffusion region twice in an readout operation to produce an output signal indicating only said photo-generated signal (Fig. 6; col. 10, lines 22-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a circuit comprising a field-effect source follower output transistor formed in each one of the cells, the second region of said pixel transistor being connected to a gate of said source follower output transistor, a field-effect load transistor connected to the source follower output transistor and a correlated double sampling circuit having an input node connected between said source follower output transistor and said load transistor and operable to sample said second diffusion region twice in an readout operation. The motivation to do so would enable making an active pixel sensor having built-in

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output amplification and to suppress fixed pattern noise from the signal due to threshold voltage offset, in order to provide a distortion corrected image without requiring the use of distortion correction circuitry as suggested in Martin (Col. 3, lines 60-67).

Allowable Subject Matter

4. Claim 25 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (703) 305-8717. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez
Examiner
Art Unit 2612

NDHH
July 19, 2004



TUAN HO
PRIMARY EXAMINER